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# Quality Engineering Test Report

**SERIES: Q-120 120W AC-DC QUAD OUTPUT SWITCHING POWER SUPPLY**

| | | | |
|---|---|---|---|
| **SAMPLE: A : Q-120B** | **V1: 5V / 11A** | **B : Q-120C V1: 5V / 10A** | **C : Q-120D V1: 5V / 8A** |
| | **V2: 12V / 4A** | **V2: 15V / 3.5A** | **V2: 12V / 2A** |
| | **V3: -5V / 1A** | **V3: -5V / 1A** | **V3: 24V / 2A** |
| | **V4: -12V / 1A** | **V4: -15V / 1A** | **V4: -12V / 1A** |

| NO | TEST ITEM | TEST CONDITION / SPECIFICATION | RESULT | VERDICT |
|---|---|---|---|---|
| 1 | AC INPUT VOLTAGE RANGE | I/P:TESTING SPEC:176~264VAC<br>O/P:FULL LOAD | A:136.1VAC~267VAC | P |
| 2 | LINE REGULATION | I/P:176~264VAC SPEC:<br>O/P:FULL LOAD<br>A: V1: ±0.5%<br>V2: ±1%<br>V3: ±1%<br>V4: ±1%<br>B: V1: ±0.5%<br>: V2: ±1%<br>V3: ±1%<br>V4: ±1%<br>C: V1: ±0.5%<br>V2: ±1%<br>V3: ±1%<br>V4: ±1% | A: V1: 0% ~ +0%<br>V2: -0.098% ~ +0.2%<br>V3: -0.35% ~ +0.117%<br>V4: -0.096% ~ +0.144%<br>B: V1: -0.12% ~ 0%<br>V2: -0.04% ~ +0.19%<br>V3: -0.48% ~ +0.23%<br>V4: -0.07% ~ +0.23%<br>C: V1: 0% ~ 0.118%<br>V2: -0.049% ~ +0.098%<br>V3: -0.049% ~ +0.176%<br>V4: -0.048% ~ +0.097% | P |
| 3 | LOAD REGULATION | I/P:230VAC SPEC:<br>O/P:MIN. TO FULL LOAD<br>A: V1: ±0.5%<br>V2: ±5%<br>V3: ±5%<br>V4: ±5%<br>B: V1: ±0.5%<br>V2: ±6%<br>V3: ±5%<br>V4: ±6%<br>C: V1: ±0.5%<br>V2: ±5%<br>V3: ±5%<br>V4: ±5% | A: V1: -0.238% ~ +0%<br>V2: +0.67% ~ +1.6%<br>V3: -1.11% ~ +1.48%<br>V4: -1.486% ~ +2.2%<br>B: V1: -0.24% ~ 0%<br>V2: -0.75% ~ +1.54%<br>V3: -0.72% ~ +1.47%<br>V4: -1.41% ~ +3.19%<br>C: V1: -0% ~ 0.118%<br>V2: 0% ~ +1.24%<br>V3: -0.099% ~ +1.48%<br>V4: -0.71% ~ +1.58% | P |
| 4 | OUTPUT VOLTAGE TOLERANCE | I/P:176~264VAC SPEC:<br>O/P:20% TO FULL LOAD<br>A: V1: ±2%<br>V2: ±6%<br>V3: ±6%<br>V4: ±6%<br>B: V1: ±2%<br>V2: -5%~+10%<br>V3: ±6%<br>V4: -5%~+10%<br>C: V1: ±2%<br>V2: ±6%<br>V3: ±6%<br>V4: ±6% | A: V1: -0.377% ~ +0.238%<br>V2: -2.9% ~ +4.86%<br>V3: -3.128% ~ +5.63%<br>V4: -1.775% ~ +5.325%<br>B: V1: -0.38% ~ +0.12%<br>V2: -2.85% ~ +4.9%<br>V3: -3.26% ~ +5%<br>V4: -2.42% ~ +4.67%<br>C: V1: -0.13% ~ +0.35%<br>V2: -2.07% ~ +3.21%<br>V3: -1.23% ~ +3.53%<br>V4: -1.65% ~ +4.19% | P |
| 5 | RIPPLE&NOISE | I/P:230VAC SPEC:<br>O/P:FULL LOAD<br>A: V1: 80mV<br>V2: 120mV<br>V3: 80mV<br>V4: 120mV<br>B: V1: 80mV<br>V2: 150mV<br>V3: 80mV<br>V4: 150mV<br>C: V1: 80mV<br>V2: 120mV<br>V3: 180mV<br>V4: 120mV | A: V1: 26mV<br>V2: 37mV<br>V3: 16mV<br>V4: 26mV<br>B: V1: 34mV<br>V2: 49mV<br>V3: 25mV<br>V4: 42mV<br>C: V1: 25mV<br>V2: 24mV<br>V3: 50mV<br>V4: 27mV | P |

NEXT

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>TEST CONDITION / SPECIFICATION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>6</td><td>AC INPUT CURRENT</td><td>I/P:230VAC SPEC:1.25A<br>O/P:FULL LOAD</td><td>A:1.269A</td><td>P</td></tr>
<tr><td>7</td><td>MAX. INRUSH CURREN</td><td>I/P:230VAC SPEC:35A<br>O/P: FULL LOAD</td><td>A:28.87A</td><td>P</td></tr>
<tr><td>8</td><td>O/P VOLTAGE ADJ.RANGE</td><td>I/P:230VAC SPEC: -5%~+10%<br>O/P:MIN. LOAD</td><td>A: 4.469V~5.792V<br>B: 4.43V~5.75V<br>C: 4.44V~5.79V</td><td>P</td></tr>
<tr><td>9</td><td>SET UP TIME</td><td>I/P:230VAC SPEC:200mS<br>O/P:FULL LOAD</td><td>A: 16.75mS</td><td>P</td></tr>
<tr><td>10</td><td>HOLD UP TIME</td><td>I/P:230VAC SPEC:20mS<br>O/P:FULL LOAD</td><td>A: 35.43mS</td><td>P</td></tr>
<tr><td>11</td><td>EFFICIENCY</td><td>I/P:230VAC SPEC:<br>O/P:FULL LOAD A:77%<br>B:76%<br>C:80%</td><td>A:79.71%<br>B:81%<br>C:83.11%</td><td>P</td></tr>
<tr><td>12</td><td>OVER LOAD PROTECTION</td><td>I/P:230VAC SPEC:105%~135%<br>O/P:TESTING</td><td>A:121.6%<br>B:122.4%<br>C:120%</td><td>P</td></tr>
<tr><td>13</td><td>OVER VOLTAGE PROTECTION</td><td>I/P:230VAC SPEC:5.75~6.75V<br>O/P:FULL LOAD</td><td>A : 6.06V<br>B : 6.58V<br>C : 6.2V</td><td>P</td></tr>
<tr><td>14</td><td>GROUND LEAKAGE CURRENT</td><td>I/P:240VAC SPEC: L-FG--<3.5mA<br>N-FG--<3.5mA</td><td>A: L-FG:1.01mA<br>N-FG:1.07mA</td><td>P</td></tr>
<tr><td>15</td><td>INSULATION RESISTANCE</td><td>SPEC: I/P-O/P: 500VDC/100M Ohms MIN.<br>I/P-FG: 500VDC/100M Ohms MIN.<br>O/P-FG: 500VDC/100M Ohms MIN.</td><td>A: O/P-FG >100M Ohms<br>I/P-O/P >100M Ohms<br>I/P-FG >100M Ohms</td><td>P</td></tr>
<tr><td>16</td><td>DIELECTRIC / WITHSTAND VOLTAGE</td><td>SPEC: I/P- O/P: 3KVAC/ 1 min.(10mA CUT-OFF)<br>I/P - FG: 1.5KVAC/ 1 min.(10mA CUT-OFF)<br>O/P - FG: 0.5KVAC/ 1 min.(10mA CUT-OFF)</td><td>A: I/P-O/P :5.36mA<br>I/P-FG :4.49mA<br>O/P-FG :5.44mA</td><td>P</td></tr>
<tr><td>17</td><td>BURN-IN TEST</td><td>I/P: 230VAC O/P: FULL LOAD<br>TA:24.7°C BURN-IN DURATION : 2 hrs</td><td>C:NON BREAK</td><td>P</td></tr>
<tr><td>18</td><td>ENVIRONMENT TEST<br>( SAMPLE A:)</td><td>HIGH AMBIENT TEMPERATURE FULL LOAD TEST<br>I/P:230VAC O/P:FULL LOAD<br>AMBIENT TEMPERATURE:49.7°C</td><td>AFTER 15 hrs<br>NON BREAK</td><td>P</td></tr>
<tr><td>19</td><td>TEMPERATURE RISE TEST T rise OF PARTS</td><td colspan="2">A: I/P :230VAC AFTER 1.25 hr BURN-IN<br>O/P :FULL LOAD TA:24.7°C
<table>
<tr><th>POSITION</th><th>P/N</th><th>TEMP</th><th>T rise</th></tr>
<tr><td>BD1</td><td>BRIDGE DIODE</td><td>70.3°C</td><td>45.6°C</td></tr>
<tr><td>Q2</td><td>MAIN TRANSISTOR</td><td>63.6°C</td><td>38.9°C</td></tr>
<tr><td>T1</td><td>MAIN TRANSFORMER WIRE</td><td>69.3°C</td><td>44.6°C</td></tr>
<tr><td>D13</td><td>O/P DIODE</td><td>87°C</td><td>62.3°C</td></tr>
<tr><td>C34</td><td>O/P FILTER CAPACITOR</td><td>67.8°C</td><td>43.1°C</td></tr>
<tr><td>L1</td><td>O/P CHOCK</td><td>84.4°C</td><td>59.7°C</td></tr>
<tr><td>C6</td><td>I/P FILTER CAPACITOR</td><td>55.8°C</td><td>31.1°C</td></tr>
<tr><td>LF1</td><td>LIME FILTER TRANSFORMER</td><td>50.6°C</td><td>25.9°C</td></tr>
</table></td><td>P</td></tr>
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PREVIOUS NEXT

| NO | TEST ITEM | TEST CONDITION / SPECIFICATION | RESULT | VERDICT |
|---|---|---|---|---|
| 20 | LIFE CYCLE | A: SUPPOSE C34 IS THE MOST CRITICAL COMPONENT<br>I/P :230VAC O/P:FULL LOAD Ta:25°C Tc34:68.1°C Life: 78136hrs<br>I/P :230VAC O/P:FULL LOAD Ta:50°C Tc34:92.6°C Life: 14299hrs | | P |
| 21 | CRITICAL COMPONENT RECORD ( FOR QC INSPECTION REFERENCE ONLY ) | A: FUSE :4A/250V<br>BRIDGE DIODE :KBJ408G<br>LINE FILTER :TF096-R1 EE-25<br>TRANSFOMER TF272 ETD-34<br>POWER SWITCHER :2SK2625 TO-3P<br>OUTPUT DIODE :CTB34 TO-3P<br>OUTPUT CAPACITOR :ELNA 2200uF/16V RJH 105°C<br>INPUT CAPACITOR :NISTUKO 330uF/200V PN-J 85°C<br>P.C.B :Q-120B-R3 CEM-3 2 OZ SS | | |

| DATE | SAMPLE | TEST RESULT | TEST | APPROVAL |
|---|---|---|---|---|
| 980428 | Q-120 | PASS | H.C.LIOU | Max Lin |
| 20010711 | Q-120D | PASS | VINCENT | Max Lin |
| 20020605 | PRODUCTION SAMPLE A201A16 Q-120B | PASS | VINCENT | Max Lin |

PREVIOUS